

### REMARKS

Favorable reconsideration of the present application in light of the above amendment and in light of the following discussion is respectfully requested.

Claims 11-14 are presently active in the case, with Claims 1-10 cancelled and with Claims 11-14, corresponding to subject matter from Claims 4, 5, 8 and 9, added, by way of the present amendment, without the introduction of new matter (see, e.g., Claims 4, 5, 8 and 9 and Fig. 1 and the discussion in Applicants' disclosure thereof and page 10, lines 6-14 of Applicants' disclosure).

In the present Office Action, (i) Claims 1, 4, 6, 8 and 9 were rejected under 35 U.S.C. §112, second paragraph, based on a finding of indefiniteness; and (ii) Claims 1-10 were rejected under 35 U.S.C. §102(b) as being anticipated by Radjai et al ("Effects of Electromagnetic ...").

In response to (i) the rejection of Claims 1, 4, 6, 8 and 9 under 35 U.S.C. §112, second paragraph, Claims 1-10 have been cancelled and Claims 11-14 corresponding to

Applicants submit that Radjai et al fail to teach or suggest forming cavities in molten metal by direct application of a high-energy vibrating force including one of an electromagnetic vibrating force and an ultrasonic vibrating force to the molten metal and crushing into small pieces, via impact pressure generated during collapse of the cavities, solid particles of metals other than the molten metal to yield a refined micro-structure of the other metals, as recited in independent Claim 11.

Applicants submit that Radjai et al merely teach inducing vibrations in a hyper-eutectic Al-Si alloy containing suspended silicon particles. The Radjai et al reference noted that any of two fields alone had no significant effect on a micro-structure of the alloys, while profound effects were observed when the two fields were applied simultaneously. The Radjai et al reference further noted that suspended silicon particles multiplied in number with a reduction in size by vibrations at temperatures higher than the liquids and agglomerated and repelled to the outer surface after a start of solidification.

However, Applicants submit that Radjai et al merely teach only that Si particles, which are initially crystallized in a hyper-eutectic Al-Si alloy, are multiplied in number with a reduction in size, but fail to teach or suggest refining a micro-structure of other substances

suspended in the Al-Si alloy or in a molten metal, as in the claimed invention (see, e.g., page

Applicants respectfully submit that the presently claimed invention provides an improved micro-structure refining method for other metals contained in a molten metal, as compared to conventional methods (see, e.g., page 10, lines 6-14 of Applicants' disclosure).

Applicants submit that Radjai et al fail to teach or suggest the noted features of the claimed invention.

Based on the above discussion, Applicants respectfully submit that independent Claim 11 and claims dependent therefrom are patentably distinguishable over Radjai et al.

In addition, the specification and abstract have been amended to correct discovered informalities and so as to place the present case in a typical U.S. format. Applicants submit that no new matter is introduced.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application. The present application is believed to be in condition for formal allowance. An early and favorable action is therefore respectfully requested.

Respectfully submitted,

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